CLAIMS

1. A method of generating functionalized latex particulates in a colloidal suspension, comprising steps of:

a) protecting functional groups present on polymerizable monomers with photo labile groups to form protected monomers;

b) polymerizing the protected monomers to form a protected polymer; and

c) exposing the protected polymer to a wavelength of light that removes the photo labile groups from the functional groups, thereby forming the functionalized latex particulates.

2. A method as in claim 1, wherein the functional groups are thiol.

3. A method as in claim 1, wherein the functional groups are amino.

4. A method as in claim 1, wherein the functional groups are hydroxyl.

5. A method as in claim 1, wherein the photo labile groups are selected from the group consisting of α-carboxy-2-nitrobenzyl (CNB), 1-(2-nitrophenyl)ethyl (NPE), 4,5-dimethoxy-2-nitrobenzyl (DMNB), 1-(4,5-dimethoxy-2-nitrophenyl)ethyl (DMNPE), (4,5-dimethoxy-2-nitrobenzoxy)carbonyl(NVOC), 5-carboxymethoxy-2-nitrobenzyl (CMNB), ((5-carboxymethoxy-2-nitrobenzyl)oxy)carbonyl (CMNCBZ), desoxybenzoinyl (desyl), anthraquino-2-ylmethoxycarbonyl (AQMOC).

6. A method as in claim 1, wherein the functional groups are attached to the polymerizable monomers through a tethering group selected from the group consisting of saturated or unsaturated lower alkylene, heteroatom-containing alkylene, substituted benzene, ester, ether, carbonyl, and combinations thereof.

7. A method as in claim 1, wherein the functionalized latex particulates have a weight average molecular weight from 10,000 Mw to 5,000,000 Mw.

8. A method as in claim 1, wherein the functionalized latex particulates formed are not substantially sensitive to the wavelength of ultraviolet light.

9. A method as in claim 1, wherein upon the exposing step, the photo labile groups decompose into solution, and wherein the decomposed photo labile groups are not interactive with the functionalized latex particulates.

10. A method as in claim 1, wherein the photo labile groups are sensitive to a specific wavelength of light, resulting in the removal of the photo labile group from the protected polymer.

11. A method as in claim 10, wherein the specific wavelength of light is within the ultraviolet range of 40 to 400 nm.

12. A method as in claim 1, wherein the polymerizing step includes copolymerizing the protected monomers with at least one additional monomer, thereby forming copolymeric functionalized latex particulates.

13. A method as in claim 12, wherein the at least one additional monomer does not contain functional groups.

14. A method as in claim 12, wherein the at least one additional monomer contains a functional group.

15. A method as in claim 1, wherein the polymerizing step includes polymerizing the protected monomers in the presence of a crosslinking agent.

16. A method of preparing an ink-jet ink, comprising:

a) preparing functionalized latex particulates in a colloidal suspension, said functionalized latex particulates prepared by:

i) protecting functional groups present on polymerizable monomers with photo labile groups to form protected monomers,

ii) polymerizing the protected monomers to form a protected polymer, and

iii) exposing the protected polymer to a wavelength of light that removes the photo labile groups from the functionalgroups, thereby forming the functionalized latex particulates;and

b) admixing the colloidal suspension with a liquid vehicle and a colorant, wherein an ink-jettable ink-jet ink is formed.

17. A method as in claim 16, further comprising the step of reacting the colorant with the functionalized latex particulates to form colorant-bound latex particulates.

18. A method as in claim 16, wherein the colorant is a dye.

19. A method as in claim 16, wherein the colorant is a pigment.

20. A method as in claim 16, wherein the functional groups are selected from the group consisting of thiol, amino, and hydroxyl.

21. A method as in claim 16, wherein the photo labile groups are selected from the group consisting of α-carboxy-2-nitrobenzyl (CNB), 1-(2-nitrophenyl)ethyl (NPE), 4,5-dimethoxy-2-nitrobenzyl (DMNB), 1-(4,5-dimethoxy-2-nitrophenyl)ethyl (DMNPE), (4,5-dimethoxy-2-nitrobenzoxy)carbonyl(NVOC), 5-carboxymethoxy-2-nitrobenzyl (CMNB), ((5-carboxymethoxy-2-nitrobenzyl)oxy)carbonyl (CMNCBZ), desoxybenzoinyl (desyl), anthraquino-2-ylmethoxycarbonyl (AQMOC).

22. A method as in claim 16, wherein the functionalized latex particulates have a weight average molecular weight from 10, 000 Mw to 5,000,000 Mw.

23. A method as in claim 16, wherein the functionalized latex particulates formed are not sensitive to the wavelength of light.

24. A method as in claim 16, wherein the polymerizing step includes copolymerizing the protected monomers with at least one additional monomer, thereby forming copolymeric functionalized latex particulates.

25. A method as in claim 16, wherein the polymerizing step includes polymerizing the protected monomers in the presence of a crosslinking agent.

26. A method of preparing an ink-jettable protective overcoat composition, comprising:

a) preparing functionalized latex particulates in a colloidal suspension, said functionalized latex particulates prepared by:

i) protecting functional groups present on polymerizable monomers with photo labile groups to form protected monomers,

ii) polymerizing the protected monomers to form a protected polymer, and

iii) exposing the protected polymer to a wavelength of light that removes the photo labile groups from the functionalgroups, thereby forming the functionalized latex particulates;and

b) admixing the colloidal suspension with a liquid vehicle, wherein an ink-jettable overcoat composition is formed.

27. A method as in claim 26, wherein the ink-jettable overcoat composition is substantially colorless.

28. A method as in claim 26, wherein the functional groups are selected from the group consisting of thiol, amino, and hydroxyl.

29. A method as in claim 26, wherein the photo labile groups are selected from the group consisting of α-carboxy-2-nitrobenzyl (CNB), 1-(2-nitrophenyl)ethyl (NPE), 4,5-dimethoxy-2-nitrobenzyl (DMNB), 1-(4,5-dimethoxy-2-nitrophenyl)ethyl (DMNPE), (4,5-dimethoxy-2-nitrobenzoxy)carbonyl(NVOC), 5-carboxymethoxy-2-nitrobenzyl (CMNB), ((5-carboxymethoxy-2-nitrobenzyl)oxy)carbonyl (CMNCBZ), desoxybenzoinyl (desyl), anthraquino-2-ylmethoxycarbonyl (AQMOC).

30. A method as in claim26, wherein the functionalized latex particulates have a weight average molecular weight from 10,000 Mw to 5,000,000 Mw.

31. A method as in claim 26, wherein the functionalized latex particulates formed are not sensitive to the wavelength of light.

32. A method as in claim 26, wherein the polymerizing step includes copolymerizing the protected monomers with at least one additional monomer, thereby forming copolymeric functionalized latex particulates.

33. A method as in claim 26, wherein the polymerizing step includes polymerizing the protected monomers in the presence of a crosslinking agent.